

OBSERVATIONS

ON

INSTINCT.

PART II.

BY

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"Je n'ai donné ces Conjectures que pour ce qu'elles valent, et ce n'étoit point la modestie, mais c'étoit le sentiment profond du Vrai, qui m'inspiroit, lorsque j'ai dit; ce que je ne sçaurois trop répéter c'est que je serai toujours prêt à abandonner mes opinions pour des opinions plus probables. Mon amour pour le vrai est sincère, et je n'aurai jamais de peine à avouer publiquement mes erreurs. J'ai toujours pensé qu'un 'j'ai tort,' valoit mieux que cent répliques ingénieuses"—*Bonnet*.

"Opinionum commenta delet dies, naturæ judicia confirmat"—*Cicero*.

"For it is impossible to disguise or neglect the truth, that to-day, as erewhile, philosophy then only first finds its place within the mind of man, when, agitated by conflicting opinions, he is a victim to doubt upon all that interests him most nearly and most dearly—God—Nature—and Life. Erewhile was, and now is, and ever will doubt be the parent of all scientific knowledge;—not, indeed, that doubt which doubts merely to reject all further investigation and search after the truth; but doubt whose object is to inquire, and by inquiring to put an end to all doubt. It is this collision of opposite opinions, this mental conflict of man with himself, or with others, that first gives birth to the true intellectual liberty, which alone is favourable to the maturity of science, and which brings with it a calm far different from that which he feels, who, in the midst of a restricted range of thought, is unconscious of restraint, and while he sees not his fetters, believes himself to be free."—*Dr. Heinrich Ritter*.

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Dedication.

TO

SAMUEL M. BROWN, M.D.

AUTHOR OF "EXPERIMENTAL RESEARCHES ON THE PRODUCTION OF SILICON
FROM PARACYANOGEN."

My dear Sir,

I dedicate the following pages, and those which have preceded them on the same subject, to you. In so doing, I experience a happiness in which none can participate but myself.

My words are my feelings. But your delicacy forbids me expressing what I would dictate. May I, nevertheless, be permitted one wish, viz., That the high position which you hold as a MAN OF SCIENCE, a PHILOSOPHER, and a CHRISTIAN, will be cherished by those who revere the opinion of the great Lord Bacon :—" *The mind is the man, and the knowledge of the mind. A man is but what he knoweth.*"

With every sentiment of respect and regard,

I am, your's most faithfully,

The Author.



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PREFACE.

I HAD the honour of reading the substance of the following pages before the *Royal Physical Society of Edinburgh*, during the winter session of 1841.

With respect to the present part, I would observe, that while I have aimed to make it, in a manner, independent and separate from my previous remarks, as well as from what will follow, I have yet had in view the forming of the three parts into one whole, and I would prefer that the present and former paper be looked upon rather as the basis upon which the reasoning on so abstruse a subject will be endeavoured to be formed,

I have assumed several positions; the present and former papers contain much authority in favour of these assumptions; I have, however, but slightly *worked* them out. This I hope to be enabled to do during the spring of the next year.

I have delayed this part, in the hope I should be enabled to take in review the latest Foreign literature, which I have been unable to do.

The French and German languages so rich in philosophical and physiological works, are yet too

much neglected ; an English writer, unless he reside in a university town, has not resources from public libraries, so unhappily deficient are they in foreign literature. The author would beg permission to allude to two circumstances which characterize his writings, and for which he has been blamed by persons who have not understood his reasons for adopting them.

The first is *Quotation*. Mr. D'Israeli observes :—
 “It is generally supposed that where there is no QUOTATION, there will be found most originality.” True ! it is a *supposition*, certainly not a *truism*. Now, quotation is more than an extract, the felicity of *application* is a difficult task. Besides, an author who calls in the aid of quotation, claims the privilege of making the quotation his own for the occasion, because it expresses his own opinions and feelings. It would not be difficult to shew, that many who deem themselves original writers, because they disdain quotation, are they who furnish least original matter. How easy it is to borrow the ideas of others, and cloak the dishonesty in our own words ! Moreover, “The wisdom of the wise, and the experience of ages, may be preserved by QUOTATION.”

The second is *Language and Style*. Matter and manner are the material of authorship. It has been our lot to be more censured for our neglect of the latter than the former. Typographical and grammatical errors are grievous faults with superficial readers, who are more attracted by the euphony of a sentence, than by the sense which it conveys. Such critics

entirely overlook the important sentence of Sir H. Davy :—“Eloquence, or even accuracy of language, is incompatible with strong feeling.” I must confess my anxiety is so great to catch at and secure ideas, that I am little solicitous about the *manner* in which I cloathe them.

So much, then, for our vindication of many literary delinquences, which will too plainly show themselves in the following pages.

In the Fields of LITERATURE and SCIENCE “Victory gives life, and relieves both the conquered and the conqueror.”

G. F. ETHERINGTON.

*Market Street, Nottingham,
Sept. 1843.*

INTRODUCTION.

THE amiable and philosophic DEGERANDO has truly observed, *La solitude est la grande école dans laquelle seule on apprend la science de soi même.*

To *know* one's self is the first duty of man. The second is to *feel* and acknowledge the existence of a Superior Power, and to study his works.

Now, the *chamber* of SOLITUDE, the venerable walls of which contain this holy and endearing spirit, is not only the sphere within which the heart and mind of man carry on their wonderful and to *himself* mysterious, and it may be also ever inexplicable operations, as regards the *knowledge* of himself, but it is moreover the theatre of the humble workman in the school of KNOWLEDGE, by which we mean an acquaintance with every thing that is *without*.

The PAST and the PRESENT are two grand but awful epochs in the history of the human mind. The subject we are about to investigate, furnishes us with an apposite illustration.

We will compare Aristotle's metaphysics with the knowledge of an illustrious individual of yesterday, Baron Cuvier, only observing, in passing, that the former philosopher presents for our consideration an admirable instance of the truth of the words of the son of Sirach:—"The thing that hath

been, it is that which shall be; and that which is done, is that which shall be done: and there is nothing new under the sun."

We have only to ask whether the Present has, in any one point, more satisfactorily answered the question, "What is Instinct?" than the Past was able to do. Yet, we cannot but reflect that TIME filled up the gulf which separated the one from the other, without which, the knowledge of the former, could not have descended upon, and been united with, that of the latter.

Time, then, is the connecting link which binds together the past, the present, and the future.

Let us briefly inquire what Time has transmitted to us, and compare it with the present.

"Animals in general appear to have a certain degree of intellectual power, and some are capable of instruction. Some animals are cautious; some are cunning. Man alone is capable of meditation and reflection. Many animals possess memory: no animal but man is capable of recollection."* Compare the above passage with the following from Cuvier:—"Even the most perfect animals are infinitely inferior to man in the intellectual faculties; although it is certain that their intelligence performs similar operations to those of the human mind: and they are capable of instruction. Man has the faculty of associating his general ideas with particular images of a more or less arbitrary character, but easily imprinted in his memory, which serve to recall to him the general ideas which they represent."

We humbly submit the following remarks on the above quotations.

The numerous well authenticated anecdotes which we pos-

* Aristotle. I have availed myself of Dr. Roget's Translation, for which see Bridgewater Treatise, Appendix.

sess, prove that Aristotle was in error when he said that the lower animals do not meditate and reflect. The anecdotes which we have recorded in our first part, incontestibly prove the falsity of this position. And the most superficial observer will adduce instances in proof of the most distinct recollection on the part of many animals. It is curious to note the physiological accuracy of Aristotle's first sentence, and the contradiction and inconsistency which characterize his second ;—verily, man sees through a glass darkly !

Cuvier's opinions strikingly force upon our notice the all-important subject ANALOGY ; and as powerfully call upon us to consider how much our philosophical nomenclature may be benefited by withdrawing a term (instinct) which conveys no idea of itself, and which, therefore, is inapplicable and eminently injurious.

Again ;—"In the greater number of animals there are traces of the moral affections of man ; for some are mild, and some are fierce. And the same thing may be very readily discerned in children, for in them we may perceive the germs of their future habits ; and indeed the dispositions of human beings at that early period of life do not differ from those of the inferior animals."—*Aristotle*.

"Animals are susceptible of emulation and jealousy, &c. In short, we may observe in the higher animals a certain degree of the reasoning faculty, which appears nearly the same with that of infants, before they have acquired the power of speech."—*Cuvier*.

And again : "As man possesses contrivances, and wisdom, and comprehension ; so some animals possess a certain natural power, which though not the same as, in some respects resembles, those faculties."—*Aristotle*.

"In a great number of animals, there exists a faculty different from intelligence, which is called *instinct*."—*Cuvier*.

These two last quotations are remarkable. After the distinguished writers have admitted that the lower animals possess moral and intellectual feelings as ourselves, although in a less degree, we are next told that animals possess a faculty different from intelligence, which is called instinct. Of what use is such a faculty? Such, then, is an illustration of the manner in which this subject has been treated to our own day; and hereby hangs a tale.

Our object in quoting the opinions of these illustrious individuals is to shew how closely the views of the present, on our proper subject, approximate to the past:—in other words, how little the accumulated experience of ages has added to the original stock.

A learned critic, who did me the honour to review the first part of this work, has said that, my “views concerning the gradations of reason in the different classes of animals, are not altogether novel;” and that he “could quote a passage or two from Aristotle, which would reveal a similar notion.”

I lay no claim to originality. I am a poor and humble, but *honest* labourer in the field of science. I am content to belong to the lowest class,—to use a spade to remove rubbish; but I will never knowingly steal the property of my neighbour, and call it mine own.

I have long known Aristotle’s opinions, not from the original, but through translation, and I was so struck with them, that I determined to investigate the subject in my first spare moments; I have done so, and one result of my research has been, that words fall short in expressing my astonishment and admiration of the man. As has been pronounced of the venerable HALLER, *Famam expressit in ære*, so it may be said with equal truth of Aristotle.

Now, the above remarks lead to the following train of

thought,—How is it that so much rubbish (pardon the word, it is innocently applied) has been heaped up, so as almost completely to hide, not only the base, but the superstructure, and effectually to defeat the endeavours of all but a few workmen? I humbly conceive that the following feature characterizes all the writings on this subject, as we shall endeavour to prove as we proceed, viz. reasoning from *particulars*. It is not the genuine inductive philosophy, that of carefully collecting a number of facts, and reasoning upon them, for instance, “to think implies the operation of several elementary powers of the intellect, the sum of which constitutes thought,” to which I refer; but it is that of reasoning upon a particular fact which is illogical and absurd, because one, two, three, or four particulars may constitute the exception, and to reason upon these only tends to involve an argument in a labyrinth, from which it can never be extricated. What we would illustrate as the genuine inductive philosophy is the following :—we believe no real doubt need be entertained that all the vertebrated animals possess reasoning faculties, because the facts and anecdotes concerning them are so well substantiated, that we are bound to treat them as facts. Mr. Sharon Turner has brought forward numerous important facts to prove that fishes, reptiles, and birds, are furnished with reasoning faculties, similar in kind, but differing in degree, from those possessed by the mammalia. We submit, that to decide so momentous a question, “Do all the lower animals possess reasoning faculties, or do they not,” upon the imperfect knowledge, and few and meagre facts which we at present possess respecting the zoophyta, mollusca, annelida, crustacea, arachnida, and insecta, is to add to the darkness we are so anxious to remove. The little satisfactory knowledge which we now possess of the vascular, muscular, and nervous systems of the above classes of animals, is but of very recent date, and for which we are

principally indebted to EHRENBURG, and a few others, on the continent.

In like manner, I consider that the following objections have not that weight which the eminent author has assigned to them:—"We do not agree with our author in thinking that all the actions, usually called instinctive, of animals, are the result of reasoning; as for instance, the pursuit of game by the hound, the deposit of ova in flesh by the meat fly, the laying of eggs in the nest of another bird, and the subsequent forsaking of them, by the cuckoo, &c. The first is obviously a yielding to the sense of smell and the dictate of appetite,—the second is totally an obedience to the sense of smell, and often in opposition to reason, as when the fly deposits its eggs in the carrion flower—and the third depends, not upon the cuckoo cunningly preconceiving the incubation of its eggs by another bird, but upon the fact that it has no *idea* of incubating its own eggs, because of the position of its crop totally unfitting it for that object."

Now, as regards the hound, should we not attribute something to the breed and education of that animal? We know that many animals have been taught and made to perform feats, for which nature never intended them. Not only so, but is it too great a stretch of the imagination to affirm that, as idiosyncrasy obtains with many men, so the same peculiarity may be extended to the lower animals? I conceive, that the above conjectures do not overstep the limits which our knowledge entitles us to suppose.

Without treating the above objections seriatim, I believe that one or more of the above propositions will explain these peculiarities. Besides, is our grand question to be denied an affirmative, because the above *few* objections have been started? Surely a number of facts, which have constituted a law, are not to suffer annihilation, because three or four objections have been

started? With as much propriety, might we affirm that an eccentric individual, or a dwarf, or a maniac, should not be admitted into the family of man, because these persons were so constituted.

Lord Bacon* asks :—“ Who taught them (brutes) Instinct? Who taught the *raven*, in a draught, to drop pebbles into a hollow tree, where she chanced to spy water, that the water might rise for her to drink? Who taught the *bee* to sail through the vast ocean of air, to distant fields, and find the way back to her hive? Who taught the *ant* to gnaw every grain of corn that she hoards, to prevent its sprouting? ” And this extraordinary philosopher just before observes :—“ Nor does the *manner of invention* described by *Virgil* differ much from the former; viz. that *practice* and *intent thought* by degrees struck out *various arts*. For this is no other than what brutes are capable of, and frequently practise; viz. an intent solicitude about some one thing, and a perpetual exercise thereof; which the necessity of their preservation imposes upon them.”

More than this, I claim for my argument the assistance of deductive reasoning.

In calling in this aid, we must enter a little into detail, because we anticipate some objections which will, in all probability, be made. For instance, the function “ Life,” is the line of demarcation between animate and inanimate creation. We will go a step further, and say, that “ mind ” is as genuine a line of demarcation as life is. Now, this is a proposition to which many will not accede, because if it be admitted, it follows that zoophyta and animals lowest in the scale of creation, are actuated by, and are as much under, the influence of mind as man is. This is our view of the matter, and we

* Shaw's Translation.

state this general proposition thus:—The function of “mind,” in other words, intellectuality, is the grand medium through which all animated nature operates, and we maintain that this admits of logical proof and mathematical demonstration. In short, we conceive that the law of “mind” holds the same ascendancy in animated creation that the law of gravitation does in inanimate matter. We perceive, then, how unfair and unphilosophical it is to bring in the several objections which have been started to what *must* be a law. As well might we argue, that a leaden ball and a feather having been let fall from a height, the former observed the law of gravity, by rapidly reaching the earth, whereas, if the latter descended, without first ascending, it was a considerably longer time in reaching the ground, as say that the several particulars which have been alluded to, in the least degree infringed upon the law we wish to establish. We know that the earth’s attraction for all bodies is the same, and that a leaden ball, and a feather *in vacuo*, will reach the earth at the same time, because the pressure of the atmosphere, the resisting influence which the lightness of the feather was incapable of overcoming, has been withdrawn. Thus, then, what might be adduced as an exception to a law, proves to be no exception at all. The error consists in not duly weighing all the *intermediate* circumstances. The question, then, recurs, What is Instinct? and what are we to understand by “blind impulse,” “secret influence,” &c.? Or, rather, is the human mind any longer to be employed in deciphering terms, and in seeking for things which can never have any real existence in the present constitution of the universe? With as much prospect of success, might we set about the work of “transmuting metals into gold,” in reviving the many absurd terms and usages of the ancients, and such like. Man is a progressive being, and why does he not *think* and *act* as becomes him with all

his boasted accumulation in history, literature, science, and art !

In our first part we proposed to take the assistance of metaphysical science, by which, almost without an exception, all the writers on this subject, have been solely guided. In the present attempt, it shall be our endeavour to go a step further, not that we are dissatisfied with that which we have done, but because we consider the importance of the subject demands that we should have recourse to physiology, that science which has made such gigantic strides of late years.

We have heard it attempted to lower the dignity and utility of metaphysical science. This must ever prove a futile task. The mere fact of the long list of illustrious names which adorn its pages, has spread a lustre and generated a spirit of veneration, which will carry it down to the latest posterity. It is of importance to know the opinion of so distinguished an individual as CONDILLAC.* He says :—"La science qui contribue le plus à rendre l'esprit lumineux, précis et étendu, et qui par conséquent, doit le préparer à l'étude de toutes les autres c'est la métaphysique."

I have asked how it is that the Present has not added one iota, in clearing up the speculations on this subject. The question is solved in the following passage, which every lover of truth and searcher after knowledge will be grieved to reflect upon :—"The literature of our own country is, we believe, acknowledged to be at a low ebb. No poetical work of the first order issues from the press. History is very little cultivated, and philosophy seems to be neglected."†

Our investigation must take the aid of philosophy : I hope to be able to shew, that by reasoning on the text, and con-

* Essai Sur L'origine des Connoissances Humaines.

† Prospectus of the British and Foreign Review.

sidering it as a *whole*,—mind is the function, or actuating principle in *all* of animated nature, and that the legitimate term, therefore, is law of mind, in the same sense as we speak of law of gravitation,—something satisfactory may be arrived at.

CHAPTER I.

WHAT IS INSTINCT?

WE shall first endeavour to answer this question by shewing what it is not, for which purpose we shall take in review the most important writers on the subject.

In my first part, I have considered several points in the work of FLEURENS, which will supersede the necessity of taking up this Author again. The title of his work is *Sur L'Instinct et L'Intelligence des Animaux*. I have objected to this title, because it strikes at the root of a law which I shall endeavour to establish. I humbly submit that this distinguished individual has left the subject in as great mystery as he found it. I have been unable to detect his elucidation of any one point.

I have also considered some objections in the work of LORD BROUGHAM.

DR. WALLACE'S admirable "Observations on the Discourse of Natural Theology, by Henry Lord Brougham," were placed in my hand since I wrote the first part of this subject. His strictures on his Lordship's views of Instinct are too important to be passed over. My best plan will be to quote a few of Dr. Wallace's remarks. He observes,—“Another and important subject connected with the main topic of ‘Immaterial Mind,’ namely, the *instincts* of animals, is observed upon by his Lordship. There” says his Lordship, “are unquestionably *mental* faculties, which we discover by observation and *consciousness*, but which are themselves wholly *unconnected* with any exercise of reason.” Now this passage is not

unaccompanied with difficulties ; mental must mean belonging to the mind—mind he has treated as *immaterial*, and as “the sentient principle”—as the agent in all the great operations which raise mind, in his estimate, *above* body, however organized. He says, “we discover these *instincts* in ourselves, and that too by *consciousness*,” i. e. by that faculty which, he says, “proves to us the existence of mind, a being *different from our bodies*, i. e. ‘immaterial,’ with a degree of evidence higher than any we can have for the existence of bodies themselves,” and yet his Lordship says that these *instincts*—these mental faculties, are themselves wholly unconnected with any exercise of *reason* !

“Is there no *inconsistency*, no contradiction in terms in this doctrine ; is the immaterial mind such that *instincts* are *mental* qualities—and yet there is in these mental qualities *nothing* connected with *any* exercise of *reason*, the great distinguishing faculty which separates *mind* from *matter* ? Is man with his immaterial mind, governed as well by *instinct* as by the reasoning power ? Is that proudest faculty which places *mind in the immaterialist’s opinion* far above inert and senseless *matter*, yet so inadequate to the government of the *whole* human animal, that its power must be helped out by that *instinct* given by the Creator to the mere animal clod—the very lowest of the brute creation ? But again ; *instinct* is a mental quality ; the brute has *instinct* ; then the brute has *mind*. Does his Lordship by the word *mind*, applied to the brute animal, possessing the mental qualities, understand the same species of *mind*—the *immaterial* mind which invests MAN with those powers over creation that make him almost literally the *lord* of nature ? If he does *not*, *what are* the substance and essence of *that* mind *which he gives to man* ; and of that with which he also dignifies the *brute* ? Will he at last acknowledge that these difficulties

render it somewhat more doubtful than he has hitherto admitted it to be ; that *matter*, and what he calls *mind*, may be congenial ? and that it cannot be yet safely denied, that the *instincts* and the *reasonings* of the *man* and of the *brute* may possibly have the same material origin,—and differ only in degree, not in specie ; both having such a portion of each, as the Almighty Creator hath thought proper to bestow on them respectively ? * * * * *

“On the whole of what occurs in the discourse on this head of *instinct*, I am sorry to say, I find nothing as to the subject of mind, that at all adds to our knowledge of it.—It throws no new light on this interesting topic—his Lordship makes no progress towards ascertaining by any new argument grounded on facts already known—or by any new inductive experiment, the limit which divides instinct from reason.”

These opinions so fully coincide with what we have expressed in our first part, that while we gladly express our deference and veneration for any opinion coming from so high a quarter, we decline to enter any further upon his Lordship’s views on this subject.

I next take up CABANIS.* He observes :—“I here place the word *instinct*, not that I consider the idea as sufficiently determined, which attaches to it in ordinary conversation. I believe it to be necessary to treat this subject in detail, and I propose to return to it in this volume : but the word exists ; it or its synonyme, is used in all languages ; and the preceding observations combat an opinion which tends to regard it as emanating from the senses, or as the representative of a vague and erroneous idea, for which it was impossible to substitute another word, which necessarily could have better disposed of the question. I observe moreover, that it seems to have been used in precisely the spirit of the strict sense which I give to

* Rapports du Physique et du Moral de L’Homme.

it ; in fact it is formed of two roots, *in* or *εν* *dans*, *dedans*, et *σπίζειν*, greek words, which mean to incite, to spur, (*piquer*, *diguillonner*.) Instinct, then, following the etymological signification, is the result of the excitements of which the stimulus is applied from the internal parts, that is to say, following the signification which we give to it here, the result of the impressions received by the internal organs."

Now, the reflecting mind is stopped at this early period of considering this distinguished philosopher's views, because it is impossible to define the expression "impressions received by the internal organs." Our author here mixes up mental with physical organs, or he meant either the one class of organs or the other. Cabanis considers that in animals in general, and in man in particular, there are two distinct kinds of impressions, which are the source of their ideas, and of their moral determinations; that the superiority of instinct, which animals, for the most part, possess over man, consists in the almost total absence of imagination; and that a great gap remains to be filled up between the internal and external impressions on the one part, and the moral determinations, or the ideas, on the other.

We cannot accompany our author further; we have translated sufficient to shew that his mode of reasoning not only does not remove, but rather adds to the difficulties which still beset our text.*

The following passages occur in the *Encyclopædia Britannica*, pp. 387-8.—"But it is never with entire impunity that philosophers borrow vague and inappropriate terms from vulgar use. Never did man afford a stronger instance of the danger than Reid, in his two most unfortunate terms, *Common Sense* and *Instinct*. Common sense is that average portion

* CONDILLAC was of opinion that all the determinations of animals are the effect of pure reason, and by consequence the result of experience.

of understanding possessed by most men, which, as it is nearly always applied to conduct, has acquired an almost exclusively practical sense. Instinct is the habitual power of producing effects like contrivances of reason, yet so far beyond the intelligence and experience of the agent, as to be utterly inexplicable by reference to them. No man, if he had been in search of improper words, could have discovered any more unfit than these two, for denoting that *law*, or *state*, or *faculty* of mind, which compels us to acknowledge certain simple and very abstract truths, not being identical propositions, to lie at the foundation of all reasoning, and to be the necessary ground of all belief." BONNET says: "Mais les Animaux ne jugent pas proprement: ils ne généralisent point leur idées; ils n'ont que des notions *particulières*; parce qu'ils ne sont point doués de la *Parole*; et c'est là ce qui paroît les *distinguer* essentiellement de l'homme." It is unnecessary that we should enter into the views individually of Hume, Reid, Brown, Kant, and many other professed metaphysicians, whose reasonings are as vague and unphilosophical as those already mentioned. It is proper, however, briefly to examine the doctrines of those writers of the Bridgewater Treatises who have touched on our subject, as well as the admirable paper of Professor Alison, in the Cyclopædia of Anatomy and Physiology.

Dr. Alison sets out with the following sentences:—"INSTINCT.—This word is often applied to the mental acts of the lower animals, as if it were truly applicable to the whole of these acts; but a little consideration will shew, *first*, that this word, in its more approved and correct acceptation, is applicable only to a *part* of the mental operations, which may be inferred from the observation of the actions and habits of animals; and, *secondly*, that in this restricted sense, the term is applicable to a part of the operations of the human mind

itself; and that the subject of instinct cannot be thoroughly understood, unless information regarding it is sought in the consciousness of our own minds, as well as in the observation of other living beings."

The following questions rise up in the mind in considering the above quotation :—*firstly*, If the term instinct be admitted to be applicable to one or more mental acts, why should it not be equally so to all of them? We have a serious objection to terms, when used in a partial sense, because such latitude is given, and as a consequence, so much uncertainty and inconsistency find a place and have a hold upon our reasonings, that nothing definite can be arrived at. It is in short a metaphysical puzzle. I understand the expression "mental acts," to be synonymous with the acts of reason, or to be the result of thought; if not, in what sense is the expression used? If, then, the expressions, mental acts, reason, and thought, convey the same idea, we maintain, that if the term instinct be applicable to one mental act, it follows that it must be equally so to all, because, whatever the subject be on which the mental act, or the reason, or the thought is engaged in considering, the radicle from which all spring is the same. The kind and variety of the subject are the same :—they are, so to speak, the machinery, upon which the action of the mind, or the reason, or the thought, in other words, the mainspring operates.

Secondly, we ask, what is to be gained by employing a term which Dr. Alison admits "is applicable to a part of the operations of the human mind itself?" Why use the term at all? The truth is, that in an inquiry of this nature, where *precision* of language alone can ascertain the truth, to speak of "part of the mental operations" is so indefinite, and admits of so many variations of opinions, that we are at a loss to know *the* meaning which the Author attaches to it.

Dr. Alison observes, "that the essential inferiority of the intellect of animals, as compared with that of man, lies in their very limited enjoyment of the faculty of *abstraction*." With the most perfect deference and respect for the opinions of our late revered teacher, we venture to think differently. We would ask if this faculty is universally possessed by man. We believe that it is possessed in a very small degree by a very large portion of the family of man, that it is little cultivated, and, therefore, that it is of little, if any use to them. In short, we are of opinion that it *almost* exclusively belongs to the educated and scientific mind; and, therefore, that few have it to any extent and are able to put it to much practical use. We must remember, that the faculty of *abstraction* is one of the highest, and certainly one of the most difficult, to educate. Who is he that has abstracted his mind but for a short time, and has not felt the fatigue and pain that accompanied it? Hence, then, the attention and perseverance required will ever confine the practical employment of this faculty to a few. If it be difficult to fix our attention, how much more so must it be to separate a compound idea, and reason upon one of the elements of which that idea is composed.

To return to the text. In our first part we have detailed one or more facts which indisputably prove that this faculty is possessed in no small degree by many animals; indeed, we have read well authenticated anecdotes of the lower animals displaying this faculty to a very extraordinary and almost incredible degree.

I refer the Reader to Mr. Youatt's work, and to volumes of naturalists generally, for ample proof of this statement. While, then, we fully admit that very many of the lower animals have this faculty, but in a small degree, we maintain at the same time that it is far from being generally possessed by man, consequently, that nothing is gained by this argument.

Dr. Alison asks, “Why is it, for example, that the monkeys which have been observed to assemble about the fires which savages have made in the forests, and been gratified by the warmth, have never been seen to gather sticks, and re-kindle them when expiring?” With deference we state that we do not think that this question is correct in itself. We submit that a qualification is necessary. It should be, and *appeared* to be gratified by the warmth, &c., because, we know that the external clothing of monkeys is adapted to the temperature of the climate in which they live, and therefore for them to institute *luxury* amongst themselves, would be to make them as much the victims of refinement and effeminacy as man is. In short, if it could be proved that monkeys are gratified by artificial warmth in their native clime, we should then expect that they would seek other sources of gratification, and among other things, introduce “drawing rooms” into their habitations. We consider it more consistent to suppose that they looked upon the fires of the savages with the same astonishment and delight as that with which an infant looks upon many objects which are not disagreeable to it, but which furnish it with means for exercising its attention for the moment.

Dr. Alison’s explanation of this question is what we cannot agree to, because the same reasoning equally applies to savages and to man in Christian countries, who have not availed themselves of many improvements which they might have and ought to have done.

“Again, although many of them are susceptible of the greatest emotions of joy, and to a certain degree of gratitude and attachment, founded on the sense and recollection of benefits, none of them seem capable of forming the slightest notion of that Divine Power, which has suggested itself to the human intellect in all ages, and even in the rudest conditions of human existence; we should regard any act of praise or

prayer as an infallible indication of a mental capacity of the same rank as our own."

I have already said, in my first paper, that we have every reason to believe that the mental and physical existence of the lower animals terminates with this life. If this supposition be true, because Scripture has not touched upon the *after* existence of the inferior animals, it follows that they do not require to have any notion of a Supreme Power, because man has been appointed ruler over them. It is more curious to reflect upon the fact, that savages never have recognised one God, they worship many gods. Dr. Reid* observes, "But this same savage hath within him the seeds of the logician, the man of taste and breeding, the orator, the statesman, the man of virtue, and the saint; which seeds, though planted in his mind by nature, yet, through want of culture and exercise, must lie for ever buried, and be hardly perceivable by himself or by others."

We shall transcribe in full Dr. Alison's definitions of Instinct and Reason, because they will be useful as references in much that is to follow.

"The utter absence of intelligence in the *other* actions of animals, corresponding to that which appears manifestly to regulate *certain* actions which accomplish certain definite purposes, is our first reason for believing that, while nature has vouchsafed to man alone the enjoyment of what we call reason,—the power of comprehending her laws, and so adapting means to ends, as to turn these laws to his own advantage,—she has provided for the maintenance of other animals, not only by the circumstances in which she has placed them, in the world, but also imparting to them, on certain occasions, a peculiar mental impulse, urging them to

* Inquiry into the Human Mind.

the performance of certain actions which are useful to themselves or to their kind, but the use of which they do not themselves perceive, and their performance of which is a necessary consequence of their being placed in certain circumstances, and often, more particularly, of their feeling certain sensations. And this is the general notion which we attach to the term Instinct.

“The term Reason is properly applied to the anticipation of those consequences of actions, of which we can be informed only by processes of reasoning and imagination, implying the exercise of the faculty of abstraction, and the formation of general notions or ideas.

“But, in order to have demonstrative proof of the essential difference between instinct and reason, and of the correctness of the view which we take of the nature of that mental impulse which prompts what we call the instinctive actions of animals, it is only necessary to reflect on what passes within ourselves on occasion of certain actions of the very same class being performed by us. It is difficult, indeed, in adult age to distinguish those actions which we perform instinctively, from those which we have learnt by repeated efforts to perform habitually: but in the case of infants we see complex actions, useful or necessary to the system, performed with perfect precision at a time when we are certain that the human intellect is quite incompetent to comprehend their importance or anticipate their effects; yet we cannot doubt that it is by a mental impulse, that they are excited, because we perform the same actions in the same circumstances in adult age, and are then conscious of the impulse which prompts them.”

Here again, we must object to the expression “mental impulse.” Is it allowable to think that the acts of the mind are performed mechanically, and set in motion, as it were, by

springs, as we may with propriety say of “physical impulse?” Surely this cannot be correct, yet, if we say that the mind is impelled, we necessarily and unavoidably attach a mechanical idea to the expression. Now, to attach any thing mechanical to the operations of the mind, is to annihilate the breath of the divinity which moves within us, we know not how, but we feel what language fails to express. No! we cannot attach an idea to “mental impulse;” then, why not say that there are actions performed by man and the lower animals, upon which our present knowledge cannot throw any light, but, do not mystify our ignorance by adding expressions which the highest inventive ingenuity must ever fail to decipher. Again: from the great light that has been thrown upon the operations of the infant mind of late years, I am not sure that Dr. Alison is warranted in thus speaking of the complex actions of the infant mind. I submit that the extraordinary and happy results which have attended the institution of *infant schools*, will cause us to pause ere we decide so important a subject. We know that an infant, four months old, under the charge of a faithful and *intelligent* nurse, evidences very decided indications of reasoning powers. We know that, under proper tuition, the infant at this early period can be taught to observe and act upon many duties of the nursery, by which the fatigue of the nurse is considerably diminished; indeed, the observation of the infant is proverbial. Now, observation is a process of the mind, and implies attention and a certain amount of thought in order to render the object of the attention interesting. Most persons have witnessed the delight of the infant in the mother’s arms, when the latter has placed a toy in his hands;—now a laugh, indicative of his approval, then a ‘scowl,’ and the expression of anger at his displeasure,—now clasping the toy, then throwing it from him, with the intervals of hesitation and doubt which its movements

indicate. Surely, there is reason, or thought, in all this, and because we cannot explain his "complex actions," we are not on that account entitled to infer that his actions are instinctive, or are the result of "mental impulse." It is unaccountable to notice the tendency which the human mind has for *coining* terms, as explanations for actions, which, at this moment, are inexplicable.

Another consideration occurs to me, which philosophers would seem to have almost forgotten, certainly it has not found that place in their reasonings which its importance deserves, it is this, we speak of the "rapidity of thought," and compare it with the velocity of a cannon ball. Now, it does not appear to have been considered, that many actions which they say are the result of instinct, may also be the result of thought. For instance, we are walking along the street, and we observe an individual upon a beautiful, but restive and timid animal. His horse 'shies' at an object, and suddenly, and of course unexpectedly, makes a leap and almost dismounts the rider. We see the danger which threatens, and as writers would say, we instinctively rush forward and endeavour to prevent it. Now, we deny that this is an instinctive action, we say that our determination to meet the accident was the result of a reasoning process, notwithstanding that it was the work of two or three seconds. I see danger, if I do not try to prevent it, it must happen, I will meet the accident in the hope that I shall be successful. These are the processes of thought, and are concluded in a second of time. The whole mind is directed to the object, the thought is concentrated, the conclusion from the premises is instantaneous.

We know that in dreams, events which have occupied a series of years, pass through the mind in two or three minutes. We maintain, then, that many actions hitherto inexplicable,

will admit of a ready explanation by the just named consideration.

Dr. Alison observes :—" Three great classes of instinctive actions may be distinguished ; the first, designed for the preservation of individuals ; the second, for the propagation and support of their offspring ; and the third, for various purposes important either to the race of animals exhibiting them, or to other animals, but not distinctly referable to either of the former heads."

Now, we would simply ask what occasion is there for calling these actions instinctive actions ? All these actions take place in man as well as in animals, and why apply the term instinctive either to the one or to the other ? I can perceive nothing to be gained by such a term.

Dr. Alison sub-divides these classes, and details a number of interesting peculiarities in particular animals, but, I humbly submit, that to reason upon these particulars, which I am of opinion are so many exceptions to a general law, is not to advance our knowledge one iota.

We have thus, then, presumed to answer a few objections which have occurred to us in the very valuable paper of Dr. Alison, Had our plan permitted, we could answer several other points, upon which we differ from the distinguished author.

Dr. Roget concludes his lengthened consideration of the subject (" INSTINCT") with the following passage :—" All these unexplained and perhaps inexplicable facts, we must content ourselves with classing under the head of *instinct*, a name which is, in fact, but the expression of our ignorance of the nature of that agency, of which, we cannot but admire the ultimate effects, while we search in vain for the efficient cause."

So much, then, for our endeavour to shew what instinct is not, with the aid of metaphysical science.

CHAPTER II.

WHAT IS INSTINCT?—CONSIDERED PHYSIOLOGICALLY.

THE opinions of one or two of the latest writers who have at all considered the text, will suffice to shew, that the views of physiologists are as extraordinary, and, therefore, as vague and unsatisfactory, as the class of philosophers we have just dismissed.

The distinguished Müller's definition of instinct corresponds precisely with that of metaphysical writers, and he says man has instincts as well as animals. He goes on to say, "The primary cause of instinct is, therefore, not seated in any one organ, but is identical with the creative force of the organization, the operations of which are guided by an unvarying law, and rational principle. The influence of this force in the production of instinct is, however, first manifested in the sensorium."

He further observes:—"It is a subject full of wonder to observe how instinct imparts to animals functions, capabilities, and intuitive perceptions, which we acquire by the laborious process of experience and education."

The above eminent physiologist, in comparing the mind of man with that of animals, says, "Man alone can conceive abstract notions. The only general idea which an animal

can conceive, is an image comprehending the most frequent and unchangeable characters of an object of the senses."

A little after, he writes, "Animals can, it is true, readily combine two ideas; but, notwithstanding all that has been said concerning their reasoning powers, they are wholly incapable of conceiving a general notion." An express contradiction, be it observed, because, "general idea," and "general notion," imply the same meaning. Müller, after having given an illustration of a general idea, then contradicts himself by saying, that animals "are wholly incapable of conceiving a general notion."

It would be an endless task to endeavour to decipher the obscurity of meaning, and subtleness of expression, which characterize almost every sentence of our author on this subject. Müller speaks of instinct as if it had a separate and individual existence; whether it be corporeal or mental, he does not say, because he does not know, but his *supposed* separate instinct is as void of real existence, as was the *vis medicatrix naturæ* of Dr. Cullen.

The late Dr. Fletcher has the following interesting notes, upon which we shall briefly comment. "All the proper instinctive actions accordingly are much more intimately connected with sensation than with thought, since they all spring from an uneasy feeling, which involves only a vague, however impetuous desire, the lowest degree of the latter function."

It would appear that Dr. Fletcher considered that sensation originated instinct, whilst "something else" developed thought. What, then, does originate thought? We cannot imagine anything to originate thought, but sensation.

Our departed author elsewhere says:—"Thought bears the same relation to Sensation, as Sensation does to Irritation. It consists in phenomena from a certain susceptibility acted on

by a certain power. As Irritation, then, may be defined to be perception of any stimulus, and Sensation, perception of an Irritation, so Thought may perhaps be defined to be perception of a Sensation, being built, as it were, upon Sensation, as Sensation is upon Irritation."

Dr. Fletcher, in common with all philosophers, is obliged to admit, that some of the actions of the lower animals are the result of reason, and he refers others to instinct because he cannot explain their *modus operandi*. Here, then, as we have already said, is the *inconsistency*.

Müller denies the existence of thought in animals. Dr. Fletcher says, "We cannot nevertheless refuse to animals the possession of thought, displayed sometimes in a surprising degree by the lowest tribes of them on certain emergencies."

Who *can* agree, when philosophers and doctors disagree! The beautiful plates in the work of that eminent physiologist Dr. Carpenter, of Bristol,* display the progressive development of the nervous systems in different classes of animals, which, so far, bear out the statement of Dr. Roget, "All the parts met with in the brain of animals exist also in the brain of man; while several of those found in man are either extremely small, or altogether absent in the brains of the lower animals."

What we have quoted goes to shew that physiology has not added any more than metaphysics have done, and, consequently, that if the metaphysician has failed to shew what instinct is not, as well also as what it is, the physiologist stands precisely in the same predicament.

Having thus endeavoured to prove that the above two classes of philosophers are insufficient to shed any light upon our investigation, we next proceed to consult the Psychologist,

* Principles of General and Comparative Physiology.

and from our notes, we fear, that although we *may have* views to communicate, they will come to be much more curious and interesting than important, in short, they will furnish admirable illustrations of the “inventive genius” of man.

CHAPTER III.

WE will first give the opinion of Thomas Aquinas, in his *Summa Theologiæ*.*

“Some say, that in addition to the vegetable soul, which was present from the first, there supervenes another soul, which is the sensitive, and again, in addition to that, another, which is the intellective. And so, there are in man three souls, one of which exists potentially with regard to another: but this has been already disposed of. And accordingly others say, that that same soul, which at first was merely vegetative, is, through action of the seminal virtue, carried forward till it reaches to that point, in which, being still the same, it nevertheless becomes sensitive; and at length the same by an ulterior progress is led on till it becomes intellective; not, indeed, through the seminal virtue acting in it, but by virtue of a superior agent, that is, God enlightening it from without.

* Transcribed from Cary's Dante.

Bonnet * says :—"Ce que je viens de dire sur l'ame Humaine privée de la parole, peut s'appliquer à l'ame des Bêtes, principe immatériel, doué de Perceptions, de Sentiment, de Volonté, d'Activité, de Mémoire, d'Imagination ; mais qui ne réfléchit point sur ces opérations, qui ne généralise point ses Idées, qu n'est point susceptible de Moralité."

We will conclude this chapter, briefly observing, that while we are taught to believe, as well as feel, that we are destined for a region far beyond this earthly sphere, and therefore, that we have a *soul*, we have not been informed that any of the lower animals are also to enjoy a blessed immortality. As already insisted on in our first part, we may confidently predict, that their existence terminates with this world. Any discussion, therefore, on a question which we have no data to work upon, would not be more useless, than it would be presumptuous ; we leave a subject, so purely speculative, *in statu quo*, and we cheerfully borrow the words of Dr. Wallace, as most appropriate on the present occasion. His address to the Reader commences thus:—"The following observations are written by one who, believing in the immortality of the soul, acknowledges his ignorance whether that soul be material or immaterial. It is also his firm conviction, that *certain* knowledge on that subject is neither attainable by man in his present state of existence, nor necessary for the government of his concerns, either as they respect this world or the next."

"———— Of this be certain :

Time, as he courses onwards, still unrolls
The volume of concealment."—*Coleridge*.

It rather behoves us to exclaim :—

"O thou, whose power o'er moving worlds presides,
Whose voice created, and whose wisdom guides,

* Reflexions sur l'ame des Bêtes Psychologie.

On darkling man in pure effulgence shine,
 And cheer the clouded man with light divine.
 'Tis thine alone to calm the pious breast
 With silent confidence and holy rest :
 From Thee, great God, we spring, to Thee we tend,
 Path, motive, guide, original and end."—*Boethius*.

RECAPITULATION.

WE have, then, endeavoured to consider the text metaphysically, physiologically, psychologically and theologically ; and that inimitable and ever-to-be-reverenced moralist, SENECA, speaks of an "instinct of virtue," and a good and sweet poet, (COLERIDGE) has written, "fear too hath its instincts," and "instinct of rectitude ;"—LUCRETIVS has written, "inspired by heavenly instinct ;"—PINEL, "instinctive madness," (instinct de fureur) ;—D'ISRAELI, "instinct of genius ;"—DR. MARSHALL HALL and others, "physical instincts ;"—DR. I. HOPE, "instinct of self-preservation ;"—SIR H. DAVY asks, "what is the instinct of animals, but an immediate revelation?"—WORDSWORTH, "instinct of tenderness ;"—MEDICAL GAZETTE for July 21, 1843, "a kind of intellectual instinct ;"—DR. BARCLAY, "blind as instinct ;"—DR. BARLOW, "carnivorous instinct, herbivorous instinct ;"—DR. HOLLAND, "bodily sensations or instincts."—M. MAGENDIE writes about "blind instinct," "animal instinct," "social instinct ;"—DR. MAUNSELL (Maunsell and Evanson on the Diseases of children) writes,—"that nature, as she usually does, has conferred a proper instinct upon mothers, in teaching them to keep their children warm." VICTOR COUSIN, "instinct of thought," (l'instinct de la pensée.) DR. EDWARDS says, that "instinct leads mothers to keep their infants warm ;"—DR. PRITCHARD, "the instinctive stage of dementia ;"—DR. BILLING, "natural instincts ;"—THE FREE-

HOLDER (1715) has the following words:—"self-love is an instinct planted in us for the good and safety of each particular person."—In LORD BROUGHAM'S "*Practical Observations upon the Education of the People*," we read, "they know this by unerring instinct."—THE ENGLISHMAN, "instinct of blood;"—M. BAYLE, "Deus est anima Brutorum;"—SPECTATOR, "When we call it *instinct*, we mean something we have no knowledge of;"—DR. BURROWS, "where reason is wanting, instinct prevails," etc. etc.

We have seen how futile has been the attempt to discuss so vital a question under any one of the above classifications, and we are compelled to acknowledge, that if any advancement is to be made, we must lay aside all this one-sidedness, (as Goethe would have said) and treat the subject as a grand *whole*. It is passing strange to suppose, that a comprehensive subject like this, could be advanced by such *exclusive* considerations. "So true is, in science, the remark of Bacon, that no natural phenomenon can be adequately studied in *itself alone*, but, to be understood, must be considered *as it stands connected with all nature*."*

* Herschell's Discourse, p. 259.

CHAPTER IV.

APPLICATION OF THE ARGUMENT.

WHETHER we contemplate the UNIVERSE as one grand whole in the design of its All-wise Creator, or we direct the reasoning faculty to the innumerable objects, individually, which compose it, we find that it admits of two great divisions—MIND and MATTER. We are struck by the immensity of bulk, and sluggishness of action of the latter, as much so, as we are by the small size and minuteness of the texture of that organ, which may or may not* be the medium through which the former communicates its impressions of the external world.

We exhaust our imaginative powers in comparing the *self* unworthiness of the subject (man) with the beauty and harmony which pervade the every movement and atom of the object contemplated. And, as the musician first plays upon one set of notes, and then leaves them for another, so do we set to work our reasoning powers, after having exhausted the “flights of fancy,” or more correctly speaking, those feelings of admiration and praise.

* Dr. Bostock says, (Phys. vol. 1, p. 320) “The brain is indeed the instrument of the mind, or the medium through which the mind acts, yet it does not necessarily follow that the mind is to be regarded as a quality or property of the brain.”

We settle down to patient and sober inquiry, and we repeat those *incomprehensible* words—Mind and Matter,—the simplicity of whose sounds are the echo, the media through which the wide and inexhaustible treasury of spiritual and human knowledge is laid open.

Mind and Matter, then, in other words, Physical Objects and Living Nature, are the two texts for the human mind to comment upon. And the first question which arises upon considering the luminary which forms the day in our planet, as well as those “lesser lights” which point out the way by night, is, Does order and harmony regulate their movements? The affirmative reply to which suggests another question, How do we know that it is so? The answer is, these consequences have principally, if not solely, been arrived at through *observation*, the results of which, physical philosophers, by the aid of mathematics and logic, which constitute the science of deduction have worked out and raised to the dignity of so many laws. For instance, philosophers have ascertained that the phenomena of Heat, Magnetism, and Electricity, of Motion, and of Gravitation, are fixed and uniform, and hence they speak of the law of Heat, of Magnetism, &c. &c.

We shall adduce the following considerations as so many arguments in favour of the positions which we wish to establish.

Dr. Roget has the following words:—“It is not, on a pre-eminence in any single physical quality or function that the title to superiority can be founded, for in each of these endowments man is excelled in turn by particular races of the lower animals; but the chief perfection of his frame consists in its general adaptation to an incomparably greater variety of objects, and an infinitely more expanded sphere of actions.”

The doctrine of the UNITY OF ORGANIC STRUCTURE presents us with an appropriate and powerful argument. The late distinguished Dr. Fletcher, who has so ably discussed this

topic, has the following sentence :—“It is an important fact, and one which has only recently received all the attention which it deserves, that, however different they may seem, both in their anatomical and physiological relations, the organs of the higher and those of the lower tribes, if not of plants, certainly of animals, are in both essentially the same, the nucleus or structural elements of each organ in the former not only existing, but being in fact in all their essential characters identical with those of the corresponding organ in the latter; so that the history of the advancement of each organ towards perfection is merely the history of the progressive development of an imaginary unity.” For instance, “The prototype of the SPINAL CORD of man may be considered to be the lines of nervous knots, connected by a double or single cord running down the body of most avertebrated animals, and that of the BRAIN, the large knot almost constantly found on the upper part of the nervous collar which surrounds their gullet. This is well seen in the leech and earth-worm.” The strictest analogy also obtains with respect to the skeleton and muscles of man and the avertebrated tribes of animals. We have already sufficiently dwelt upon the intimate analogy which exists between the mind of man and that of animals. We shall now inquire into those obstacles which philosophical discussion, not properly carried out and understood, has thrown in the way, and which has added so much to the difficulties it has been so anxious to remove. For this purpose we must recur to the object of this paper, which is to demonstrate that *mind* is the function or actuating principle in all of animated nature; (that is to say, as much so in all the lower animals, as we know it is in man) and that the legitimate term, therefore, is law of mind, (the existence of which we shall try to prove) in the same sense as we speak of law of gravitation, or any other physical law.

First, then, it is an old and often disputed question, whether the doctrines of the Baconian philosophy are properly applicable to the science of mind, and whether the investigation of mental phenomena can be considered to involve the practice of a method of procedure at all analogous to the experimental inquiries of physics.

INDUCTION consists in proceeding from particular facts to general principles, for instance, to repeat an illustration, "to think implies the operation of several elementary powers of the intellect, the sum of which constitutes thought," viz. memory, imagination, judgment, reflection, &c.

DEDUCTION consists in pointing out the results and applications of laws which have been arrived at through the "mathematical deduction of consequences." There cannot, therefore, be any doubt as to the importance and necessity of analytical science in the study of mind, as little as there can be of the many truths which have been produced from the inductive generalization of physical facts. What SCIENCE has to lament, is the exclusive adherence either to the analytical or synthetical methods of procedure.

The all-powerful science of COMBINATION hitherto has been almost neglected, partly, no doubt from the difficulties attendant upon its cultivation, but principally from a prevailing opinion, perfectly erroneous and absurd, (and a grievous oversight in early education) that the successful study and improvement of analysis and synthesis requires minds of different *aptitude* and capabilities. And, certainly, the labours of Galileo, Kepler, Newton, Davy, D'Alembert, and Laplace, were of an "order of mind," as the expression goes, the precise opposite of Aristotle, Bacon, Locke, Kant, and the other distinguished philosophers of their school.

But then, there is an error in supposing that there is any *real* distinction in study between mind and matter, however

much they may have been divided and sub-divided for scientific pursuit and convenience. We deny that it is necessary, or that it was ever intended by God, that one man should be a *pure* physical philosopher, and another a *pure* mental philosopher, and that to adduce the just named philosophers as an illustration, and to found an argument upon them, is totally to annihilate the intentions of Providence, and to subvert the genuine rules of philosophical inquiry. No! Let us be careful in reasoning upon these examples, *they* are not legitimate instances to work upon,—their exclusive study of physics and metaphysics, was the result of ACCIDENT; and it is a total perversion of human thought to affirm that it was necessary that any one of the above named philosophers should be bound down to the one or the other. And I will venture to build an explanation upon this accidental direction of the mind to a particular department of Nature's works. Is it not proverbial, that the "man of science" is too often the disbeliever in the existence of God, and, therefore, the contemner of His religious ordinances? Now, there *is* a reason for this, and the question is by no means answered by saying that "several of the greatest philosophers have also been the greatest Christians." *One* reason is, that from an inexplicable, and so to speak, almost innate idea, that is to say, from the earliest period of the cultivation of science, when the opinion first took root, viz., that the study and discovery in physics was incompatible with the study and discovery in metaphysics, and, therefore, that the youthful mind was not taught to consider and to study the universe of mind and the universe of matter as one grand whole in the design of its Creator; that the existence, and stability, and harmony of this world depended upon the mutual relations which each part bears to the other, and that we can form no conception of man existing without the world of inanimate matter, any more

than we can its opposite, we may trace this exclusive study of one or other department of Science.

If we go a step further and consider the ultimate elements of the mind, the *sources* of knowledge in whatever department we may place it, we find that reason, judgment, and imagination are the great divisions. And common sense asks how it is that the teacher of the youthful mind does not insist upon the regular and healthy employment of each of these faculties. How is it that he gives the bridle to the one, and allows it to lay waste the fair face of nature by its extravagancies and undue sway, and that he permits the other to wallow in the mire of neglect and inactivity? Hence we have an explanation of what writers have called the “child of genius.”* But I am forgetting my proper subject, so true it is that the mind will wander, and often the comment on a digression, is of more practical importance than the elucidation of the text with which we set out.

To return. It has been objected to our argument that *absolute proof* could not be afforded, that the actions of animals are the result of a reasoning process. Now, those persons who would deal with us on such hard terms, have forgotten how much *must* be taken for granted. “We should soon involve ourselves in helpless perplexity and darkness, did we insist on every thing being proved and on nothing being assumed,—for valid assumptions are the materials of truth.”† And Dr.

* We have been much gratified by the perusal of a work “ON GENIUS, in which it is attempted to be proved, that there is no MENTAL distinction among mankind:” by Mr. W. Grisenthwaite of Nottingham. The views embodied in this work are what we have advocated for several years, and in our writings we have expressed our dissent from many of the greatest philosophers of ancient and modern times. Scarcely three weeks have elapsed since we read Mr. Grisenthwaite’s work, and we append this note August 10, 1843.

† Chalmer’s Bridgewater Treatise, vol. I.

Thomas Reid has well said :—“ All reasoning must be from first principles ; and for first principles no other reason can be given but this, that, by the constitution of our nature, we are under a necessity of assenting to them. Such principles are parts of our constitution, no less than the power of thinking ; nor can it do any thing without them : it is like a telescope, which may help a man to see further, who hath eyes, but without eyes, a telescope shews nothing at all. A mathematician cannot prove the truth of his axioms, nor can he prove any thing unless he take them for granted. We cannot prove the existence of our minds, nor even of our thoughts and sensations. A historian or a witness, can prove nothing, unless it is taken for granted that the memory and the senses may be trusted. A natural philosopher can prove nothing, unless it is taken for granted that the course of nature is steady and uniform.” We thus perceive how futile any attempt is to disprove our position on the above named objection. And an able writer has said :*—“ If we do not admit that a few instances can be taken as specimens of a class, containing individuals apparently dissimilar, then, indeed, the mode in which the mind arrives at laws in physical investigation, is often incompatible with logical propriety—a proposition truly monstrous.” This quotation is equally applicable to our present subject. And it brings us to consider briefly the philosophy of what Bacon called a “ *prerogative fact*,” which is inseparably connected with our argument, and which may be defined to be particular organized beings, whose organization is sufficiently manifest and ample to permit them to be taken as specimens of the class to which they belong. For instance, we consider the doctrine of the circulation of the blood, by HARVEY, to furnish an admirable illustration of the position in which our

* See a paper in the Edinb. New Philosoph. Journal, for August 1837, by Rob. M. Glover, Esq.

argument stands, only observing, that it is one law among others necessary to constitute one grand and universal law. We will use the words of Mr. Glover, to whose excellent paper already noticed, we have placed ourself under obligation. "If, then, we take that celebrated doctrine (of the circulation of the blood) and spread it out, so as to display all its parts, and ask proof for every assertion made in it, we should demand such a knowledge of the structure of the heart and arteries as to be sure of their powers and capabilities to allow of the course alleged, and to perform the functions ascribed to them,—evidence that the heart sends the blood into the aorta, like evidence of it being sent along the arteries into the minute veins, of the return, and the same kind of proof of the lesser circulation as of the greater. It is believed, that when Harvey announced the circulation, he was not able to furnish all of those proofs, in particular, that he had not evidence of the actual passage of the blood from the small arteries into the small veins. Of the lesser circulation he probably could only offer the analogy of the parts performing it with those concerned in the greater. Yet his doctrines, founded on the proof he gave, must be acknowledged, possessed of such evidence as that, if more be added, it can only amplify the notion he gives of the circulation. * * * Now, the theory of the circulation was proved originally on deer; and the extensive analogies, which in fact are but covert similarities traceable throughout the animate kingdom, allow of physiological doctrines being transferred readily from one genus to another."

In like manner, when we institute the propositions, firstly, that *mind* is the function or actuating principle in all of animated nature; and, secondly, that *law of mind* is a legitimate and unavoidable deductive inference, or, in other words, assume a general principle and reduce it to particulars, we

are not prepared to prove every step in the reasoning process. But we are not on that account to deny the existence and refuse the admission of it into our reasonings and belief. Let us, for the sake of argument, reduce its value, and call it an hypothesis, we must still give due consideration to its value. Lord Brougham has the following opinion:—"When no other supposition will account for the appearances, the hypothesis is no longer gratuitous, and it constantly happens, that an inference drawn from an imperfect induction, and which would be on that state of the facts, unauthorised, because equivocal, and not the only supposition, on which the facts could be explained, becomes legitimate on a further induction, whereby we shew, that though the facts first observed might be explained by some other suppositions, yet those facts newly observed could to no other supposition be reconciled." Were this the proper place we would endeavour to point out the distinctions which should be drawn in considering the different methods of inductive procedure; there is no one thing in the philosophy of logic, to which so much doubt and error attach,—what is considered legitimate induction by one man is imperfect in the opinion of another, and thus it comes to pass, that the reasoning process on philosophical principles is a stair, which we ascend by very irregular steps, the instability of which threatens to destroy, or at least, to confine and perplex the anxious enquirer after truth in his progress. So true it is, that while deduction does sometimes enable us to perceive additions to our knowledge in perspective, induction, the road to it, is marked by rugged, and wayward paths, and too often defies our attempts to reach it.

So much, then, for this brief exposition of the difficulties attendant upon scientific investigation.

The attentive reader, already, will have anticipated the application of the above hints to our proper subject.

CHAPTER V.

APPLICATION OF THE ARGUMENT CONTINUED.

“Instinct stands in antithesis to Reason.”

NOW, LIFE, by which abstract term, we understand the sum of the actions of organized beings, has hitherto been considered to constitute the grand line of demarcation between animate and inanimate objects.

My proposition then, leads to a new consideration of the constitution of organized beings, and involves the following train of thought. Firstly, that mind is *immaterial*, that is to say, we cannot see or handle it. We can see the brain in life (either through accident or disease) as well as in death, but we look upon physical matter in so far as mind is concerned, not only so, but the records of pathology have furnished illustrations of the healthy action of mind, with the (almost) non-existence of brain, that is to say, that during life, the healthy action of mind was carried on, while a post-mortem examination has detected nothing but the faintest remain of brain ; hence, then, we have two powerful arguments for the immateriality of mind. Theologians and psychologists agree that mind is immaterial, because they use the term *spirit*, which we understand to be a “something” infinitely removed from, but superadded to, organization. Philosophers and physiolo-

gists also agree in this, that the mind is immaterial ; but contend that the brain is the medium through which the mind acts. We can form no idea of the separate existence of spirit or mind apart from organization, hence one argument in favour of the notion conveyed in the preceding sentence. I decline, however, to pursue this question further in this place, if it were only that I can dispense with it.

Secondly, we state the next proposition thus,—Mind is superadded to organization, it therefore necessarily follows, that mind is superadded to the organization of the inferior animals, in other words, to all beings endowed with life ; firstly, because the science of ANALOGY (under which are comprehended the intellectual, moral, and animal faculties) which is so intimately interwoven with the highest and the lowest of animated beings, obliges us to admit a portion of mind to the “meanest insect,” as much so, as we grant a larger amount of it to the highest intellectuality. We then state the third proposition thus,—that, as we know that the world is governed by general laws, it follows that physical matter and mind are guided by laws which are fixed and uniform, because mind and matter are the elements of which this world is composed. Fourthly, that, as light, electricity, magnetism, gravitation, &c., can be proved inductively, we are entitled to state the proposition, law of mind, which, although our present knowledge does not permit us to prove inductively throughout, nevertheless exists, and will one day be verified. First, because, (as just shown) mind is a part of the constitution of this world, and as the world is governed by general laws, it follows that the individual constituents of this world are also under laws, for, what is true of a whole, is necessarily true of a part. Therefore it is we say that, reason, or thought, and judgment, and imagination, which are the three great divisions of mind, and which actuate the actions of men, likewise also actuate the actions of

all animated beings, which conclusion is a philosophic and unavoidable inference from the preceding reasoning.

We have thus, then, ascended from particular facts to general principles. In our last chapter we endeavoured to explain the obstacles which hitherto, and in all probability for some time to come, will prevent the laws of mind from being worked out as has been so happily done with the laws of matter. We may have to wait a while ere a philosopher rise to achieve for the mental organization of the inferior animals what EHRENBURG has done for their physical structure. It requires a mind of comprehensive powers to grapple with a subject like this, and a generation may pass away before an individual appear to do for mind what NEWTON has done for matter.

The proposition, then, that "instinct stands in antithesis to reason" cannot find a place.

I now proceed to institute "a consideration of the *ultimate* relation which exists between man and the inferior animals," which we have been requested to undertake by a distinguished writer, and which we cannot better do than in his own words, which so perfectly coincide with our views of the subject. He says, "Our own opinion is, that when God 'breathed into man the breath of life,' he gave him an immortal essence, by which he was rendered capable of forming an estimate of Deity—which essence or spirit, and its exercise, constitute the difference between man and the inferior tribes."

Much has been written of the "habits of animals." I have never been able to attach any definite idea to the expression. I have rather considered it a loop-hole from which to escape a difficulty; and again, that "the actions of animals are *sui generis*,"—why, with as much propriety may we speak of the actions of the different secretions of our body as *sui generis*,

because each differs from the other, but, surely, no philosophical argument can be founded upon any such consideration. It is the hankering after such nice, and we fear false refinements, that has retarded in no small degree the light, which otherwise might have been thrown upon the subject.

We shall conclude this paper with the following reflections. From my window and garden I am favoured with a view of nature which is eminently calculated to raise uncommon thoughts. To the right I see the Leicestershire hills, nearer me are the Ruddington, on one of which stands a "mill," whose regular and constant movements speak a lesson of wisdom and example to all but the voluntarily blind of head and heart, whose hours of work are "from the rising of the sun to the going down of the same." At intermediate distances from these hills the telescope discloses a village here and there, Clifton Grove, and Wilford, until the river Trent breaks the connection, which stream is ever recalling to my recollection that inimitable line of feeling of Wordsworth,—

"The river windeth at his own sweet will."

To the left, I see Belvoir Castle, the hoary appearance of whose battlements indicates the gnawing hand of TIME. Nearer me is the village of Colwick, and its "walks," which, with the above, are specimens of the most delightful and romantic English scenery.

Now, the above form the beauties of external nature, and as such, are the exclusive domain of the Poet, yet *he* must exclaim—

"What tho' I trace each herb and flower
That drinks the morning dew?
Unless I own Jehovah's power,
How vain were all I knew!"

We leave, then, the fairy field of imagination, and we lay hold of those more interesting and important, because animate

beings, which feed on and keep in check the exuberances of nature's growth, And we ask, if it can be possible that the "beast of the field, the fowl of the air, or the fish of the sea," can have been intended to derive their sources of food and enjoyment from an "instinctive impulse," or "blind reason?" In short, how can it be imagined even that mind, impelled by a mechanical impulse, can afford an atom of enjoyment, of will, or feeling, to its inhabitant? The idea is preposterous.

This reflection opens before us the SCIENCE of OBSERVATION which, as a quality of mind, stands next in importance to the thinking faculty. Now, we have all noticed and admired the domiciliary occupations of a rookery. We have observed its inhabitants actuated by the purest harmony of feeling, and also, by the greatest discord. We have watched for half an hour at a time the various movements of the feathered tribe, and we have thought that we held the key to the passions which actuated their various pursuits. And the science of observation can be learnt by every one in the school of nature, certainly not without solicitation, but "without money and without price." We cannot believe that the man of observation will deny the several elementary faculties of the human mind to *all* of the lower animals. Abstraction and attention are admirably displayed by the bee and wasp; reason and judgment by the elephant, horse, and dog; imagination by the peacock, and the many inhabitants of foreign climes; cunning by the fox; caution and perseverance in springing upon prey by voracious animals, and so on. Every one knows that animals are "educable," and the instances of mildness and good nature amongst them are almost innumerable.

How, then, can it be maintained that the lower animals are not actuated by mind, the same in kind, but differing in degree from that possessed by man?

I feel assured in my own mind, that it will one day be

allowed that mind is the prerogative of all animated beings, in other words, that there is a universe of mind as there is a universe of matter. Again : surely it is more consonant with a right idea of the constitution of this world to suppose that mind is the citadel of life and matter, than to affirm that a mechanical impulse is given to any being, otherwise endowed with all the attributes of life. We cannot associate in our reasoning the idea that the actions of a living being are guided by a blind impulse. The chain of harmony and connection in the living world is immediately broken, and we lose the thread which attaches our astonishment to our praise and adoration of the Creator. Can we view the many species of the insect world, each performing its destined work in this sphere of contemplation and action, and be content to think that their every movement is the result of a something unknown and uncared for by themselves? What is it that gives happiness to man? The feeling that arises out of his knowledge that he is a *free agent*,—that he is free to do of his own good pleasure. What happiness can attach to an animal which is not a free agent, and how can happiness and free agency be compatible with a being whose actions are mechanical? The Deity placed man the governor over all his creatures, but if He had intended the lower animals should be guided by a blind impulse, where then is the use or possibility of man acting as governor over creatures, the actions of which he had not under his controul? Man himself is the author of his own happiness, because a rightly constituted mind only wills to act what will tend to his happiness. In like manner, we contend that the lower animals are the authors of their own happiness, because they can will actions which are calculated to add to their comfort and support. The strict injunctions which God delivered to man, that the latter should rule over them with kindness and forbearance, is an all-powerful and insuperable

argument that He intended that the whole animated race should be the creatures of will and sense, left to pursue their own enjoyments under the governorship of man, in the same manner as he is the servant of God. We may rest assured that one grand design of Providence originated this world, and will continue to order it until Time shall be no more. GOD—NATURE—LIFE—MIND.

Let us dare to substitute a mechanical impulse for mind and the chain of harmony and of wonder is broken, and it can not be restored :—

“Mind, mind alone ! bear witness earth and heaven,
The living fountains of itself contains, of beauteous
And sublime.”

We are told to behold the lilies of the field, for “they toil not, neither do they spin.” How much greater things have we to contemplate when we view moving things on the wide panorama of nature, intellectual life, each a little world to itself, and carrying it on its shoulders ! The mind of each man and animal is his own world, the sphere within which he carries on his intellectual and animal movements. But there is still more to admire in those creatures which, so far as we know, have not a brain, and yet still carry on the same intellectual workmanship through a nervous system. It is only by thinking and feeling, on our part, that the actions of mind in all of animated nature are universal and the same, that we can adore as we ought “the mighty hand which arranged them all ;”—it is only by believing and acting up to our belief that the Giver of all good has vouchsafed his blessings to the least as well as to the greatest ;—it is only by studying the universality of mind, that we can view creation as it really is.

We have thus, then, endeavoured to place the lower animals on that footing, which we believe the Deity has intended they should hold on this theatre of existence.

APPENDIX.

THE transcriptions we are now to give will be laid down without any regard to time and order. It is not desirable that we occupy our considerations in classifications or divisions, as they will not in any wise better elucidate our obscure subject; we will, therefore, suit the conveniences of reference.

We quote the following curious speculations from *Hallam's Introduction to the Literature of Europe*, vol. iv.

“ We may place under the head of zoology a short essay by Fabricius de Aqua pendente, on the language of brutes; a subject very curious in itself, and which has by no means sufficiently attracted notice even in this experimental age. It cannot be said that Fabricius enters thoroughly into the problem, much less exhausts it. He divides the subject into six questions:—1. Whether brutes have a language, and of what kind:—2. How far it differs from that of man, and whether the languages of different species differ from one another:—3. What is its use:—4. In what modes animals express their affections:—5. What means we have of understanding their language:—6. What is their organ of speech. The affirmative of the first question he proves by authority of several writers, confirmed by experience especially of hunters, shepherds, and cowherds, who know by the difference of sounds what animals mean to express. It may be objected that brutes utter sounds, but do not speak. But this is merely as we define speech: and he attempts to shew that brutes by varying their utterance do all that we do by *literal* sounds. This leads to the solution of the second question. Men agree with brutes in having

speech, and in forming elementary sounds, which he calls *articulos*, or joints of the voice, being quicker and more numerous. Man, again forms his sounds more by means of the lips and tongue, which are softer in him than they are in brutes. Hence his speech runs into great variety and complication, which we call language, while that of animals within the same species is much more uniform. The question as to the use of speech to brutes is not difficult. But he seems to confine this utility to the expression of particular emotions, and does not meddle with the more curious inquiry, whether they have capacity of communicating specific facts to one another, and if they have, whether this is done through the organs of the voice. The fourth question is, in how many modes animals express their feelings. These are by look, by gesture, by sound, by voice, by language. Fabricius tells us that he had seen a dog, meaning to expel another dog from the place he wished himself to occupy, begin by looking fierce, then use meaning gestures, then growl, and finally bark. Inferior animals, such as worms have only the two former sorts of communication. Fishes, at least some kinds, have a power of emitting a sound, though not properly a voice;—this may be by the fins or gills. To insects also he seems to deny voice, much more language, though they declare their feelings by sound. Even of oxen, stags, and some other quadrupeds, he would rather say that they have voice than language. But cats, dogs, and birds have a proper language. All, however, are excelled by man, who is truly called *μεροψ*, from his more clear and distinct articulations. In the fifth place, however difficult it may appear to understand the language of brutes, we know that they understand what is said to them; how much more therefore ought we, superior in reason, to understand them. He proceeds from hence to an analysis of the passions which he reduces to four: joy, desire, grief, and fear. Having thus drawn our map of the passions, we might ascertain by observation what are the articulations of which any species of animals is capable, which cannot be done by description. His own experiments were made on the dog and the hen. Their articulations are sometimes complex; as when a dog wants to come into his master's chamber, he begins by a shrill small yelp,

expressive of desire, which becomes deeper, so as to denote a mingled desire and annoyance, and ends in a lamentable howl of the latter feeling alone."

From *Adelon's Physiologie De L'Homme*.—" *Expressions*. Nous avons dit que, parce que les animaux avaient des sentiments et des volontés, ils avaient aussi un langage ; mais ce langage varié chez eux comme leur sensibilité, avec laquelle il est toujours en rapport. Chez ceux dont la sensibilité est restreinte, et le pouvoir sur la nature borné, il se réduit à des phénomènes expressifs qui ne sont sensibles qu'à la vue, qu'on appelle *gestes*, et qui consistent en des changements dans la pose, les mouvements de l'animal, dans l'état de coloration de la peau, etc. Chez les animaux supérieurs, au contraire, dont les sentiments sont plus multipliés, l'influence sur l'univers plus grande, chez ceux surtout qui sont destinés à une vie sociale, outre le premier ordre de phénomènes expressifs, il en est d'autres qui consistent en des sons que l'animal peut même articuler ; et il en résulte des actions très intéressantes, celles de *la voix* et de *la parole*."

From *Smellie's Philosophy of Natural History*.—" It is remarkable that the spout-fish, though it lives in salt water, abhors salt. When a little salt is thrown into the hole, the animal instantly quits its habitation. But it is still more remarkable, that, if you seize the animal with your hand, and afterwards allow it to retire into its cell, you may strew as much salt upon it as you please, but the fish will never again make its appearance. If you do not handle the animal, by applying salt you may make it come to the surface as often as you incline ; and fishermen often make use of this stratagem. This behaviour indicates more sentiment and recollection than one should naturally expect from a spout-fish. * * * * *

The spider, the dermestes, and many insects of the beetle kind, exhibit an instinct of a very uncommon nature. When put in terror by a touch of the finger, the spider runs off with great swiftness : but if he finds that whatever direction he takes, he is opposed by another finger, he then seems to despair of being able to escape, contracts his limbs and body, lies perfectly motionless, and counterfeits every symptom of death. In this situation, I have pierced spiders with

pins, and torn them to pieces, without their discovering the smallest mark of pain. This simulation of death has been ascribed to a strong convulsion or stupor, occasioned by terror. I have repeatedly tried the experiment, and uniformly found, that, if the object of terror be removed, in a few seconds the animal runs off with great rapidity. Some beetles, when counterfeiting death, suffer themselves to be gradually roasted, without moving a single joint."

From *Dr. Whately's Logic*.—"For there are many modes of exercise of the faculties, mental as well as bodily, which are in great measure common to us with the lower animals. Evidently, in *Reasoning*. They are all occupied in deducing well or ill conclusions from premises, each concerning the subject of his own particular business."—See also Appendix, page 380.

From the *Rev. William Kirby's Bridgewater Treatise*.—"It is doubtful whether the ancients had any distinct idea of that impulse upon animals urging them necessarily to certain actions, which modern writers have denominated *instinct*."

From *M. Majendie's Physiology, by Dr. Milligan*.—"Animals are not abandoned by nature to themselves; they are all employed in a series of actions; whence results that marvellous whole that is seen amongst organized beings. To incline animals to the peculiar execution of those actions which are necessary for them, nature has provided them with *instinct*; that is, propensities, inclinations, wants, by which they are constantly excited, and forced to fulfil the intentions of nature. Instinct may exist in two different modes with or without knowledge of the end. The first is enlightened instinct, the second is blind instinct; the one is particularly the gift of man, the other belongs to animals."

From *Mr. Locke, on the Human Understanding*.—"For if they (brutes) have any ideas at all, and are not bare machines, (as some would have them) we cannot deny them to have some reason. It seems as evident to me, that they do, some of them, in certain instances, reason, as that they have sense; but it is only in particular ideas, just as they received them from their senses." In another place Mr Locke says,—“Brutes have memory”

From *Dr. M. Good's Study of Medicine*.—" Yet perhaps there is no species among the class of birds that is more entitled to notice in a physiological survey, on account of its voice, than the *turdus polyglottus*, or mocking bird. This is a sub-division of the thrush-kind ; its own natural note is delightfully musical and solemn : but, beyond this, it possesses an instinctive talent of imitating the note of every other kind of singing-bird, and even the voice of every bird of prey, so exactly as to deceive the very kinds it attempts to mock. It is moreover playful enough to find amusement in the deception ; and takes a pleasure in decoying smaller birds near it by mimicking their notes, when it frightens them almost to death, or drives them away with all speed, by pouring upon them the screams of such birds of prey, as they most dread."

" *Interesting Facts connected with the Animal Kingdom, by Dr. I. C. Hall, Reviewed in Dr. I. Johnson's Medico-Chirurgical Review, for Jan. 1843 ; from which review we transcribe the following:—*

" But if we come to a closer analysis, or comparison of Reason and Instinct, we find great difficulty in drawing a clear distinction between the two. It is only by their great distinctive effects that we can discriminate the one from the other. * * * In respect to language, we have some doubts as to its being peculiar to man. It is by his mental powers alone that man can be distinguished from the animal kingdom around him. One question remains. On which side does happiness predominate ? on that of man or that of beast ? The writer gives by far the larger share of happiness to the lower animals."

From *Sir D. K. Sandford, on " The rise and Progress of Literature."*—" A close examination of animated nature, in all its moral, mental, and physical attributes, will prove that man is distinguished from the inferior creatures of the earth by nothing so much as the possession of Literature and Science."

From the *British and Foreign Medical Review*, vol. ix. 1840, Review of *Dubois' work on Medical Study*.—" We believe it to be a most important principle in physiology, which has hitherto received but little attention, that the lower the degree of organization, the

more is the character of the being susceptible of influence from external sources. The simple plants and animals have been found to produce germs capable of being developed into a great variety of forms, according to the conditions under which they live and grow ; so great is the variety that naturalists have created, not only species and genera, but families and orders, among beings which really spring from a common origin. The resemblance between the embryos of higher beings, and the permanent forms of the lower, is now universally acknowledged : and the resemblance is in no respect more striking than this. It is during the *early* period of the developement of the organism upon its form and character ; and changes may be induced in it at that time, which at a later period, it would either resist, or entirely succumb to."

From *The Physiological Anatomy and Physiology of Man*, by Professor Todd, and Mr. Bowman.—“ In all the inferior animals possessed of like organs, there can be no doubt that sensations may be produced similar to those which arise in the human mind. In many of them, indeed, the sense of sight, hearing, or smell seems much more acute than in man, and affords examples of a beautiful and providential provision for the peculiar sphere which the creatures are destined to occupy ; * * * * * are familiar illustrations of the superiority of these senses in animals whose general organization is inferior to that of man. * * * * * Although the animals, inferior to man exhibit many mental acts in common with him, they are devoid of all power of abstract reasoning. Yet animals are guided by *Instinct* to the performance of certain acts which have reference to a determinate end : they construct various mechanical contrivances, and adopt measures of prudent foresight to provide for a season of want and difficulty. None of these acts could be effected by man without antecedent reasoning, experience, or instruction. But animals do them without previous assistance, and the young and inexperienced are as expert as those which have frequently repeated them.”

We quote the following opinions of the *Archbishop of Dublin*, (Dr. Whately) from a Lecture which he lately delivered before the

Dublin Natural History Society.—"What he," the Archbishop, "desired to convey was, that man possessed instinct in a lower degree than almost all the animals, and in a lower degree in proportion to his superiority in other respects; and he would add, that as man possessed instinct in a lower degree than the brutes, so in a lower degree than man, brutes, at least the higher brutes, possessed reason. He meant to say, that the actions of the brute sprung from the same impulse as those of man. A man built a house from reason, a bird built a nest from instinct. He did not mean to say that the bird had reason, but that man not only did the same things, but did them *from the same species of impulse which should be called instinctive either in man or brute*; and that several things were done by brutes, not only the same in action, but done by the same impulse. He would not inquire into what was called reason any more than what was denominated instinct. He would only say, that several things which were allowed by every one to be acts of reason, when done by a man, were done by brutes under a similar impulse. * *

It is quite clear, that if such acts were done by man, they would be regarded as the exercise of reason. They were called acts of reason when done by man, and he did not know why they should not be called the same when performed by brutes. Upon the other hand, hunger and thirst were as instinctive in man as in brutes. The invalid did not act upon instinct, when he ate without a desire to do so; he acted upon reason, which told him that unless he ate, his strength would not support him through the disease under which he laboured; but the man who ate when he was hungry, and drank when he was thirsty, acted as much from instinct as the new-born babe when it sucked. He laid down the proposition, that brutes possessed a portion of reason, man a portion of instinct. The question then arose, in what consisted the difference between man and the higher brutes. It was not that brutes were destitute of the power of exerting reason: it was clear they had that power, and innumerable instances analogous to those he stated might be produced to prove the fact. It was not a difference in mere degree, but in kind. An intelligent brute was not like a stupid man. The intelligence and

sagacity shown by the elephant, monkey, and dog, were something very different from the lowest and most stupid of human beings. *

* * * The great difference was the power of using signs, and employing language as an instrument of thought. They were accustomed to speak of language as useful to man to communicate his thoughts. He considered this as one of the smallest uses of language. He regarded it as an instrument of thought, and conceived the characteristic of man to be the capability of employing it as such. Man was not the only animal that could make use of language to express his thoughts. Language, as an expression of what was passing inwardly, could be understood and used by other animals; as far as they could be said to think and have emotions, they could express them."

We transcribe the following passages from the *British and Foreign Medical Review*, vol. xi. 1841; it is a *Review* of Drs. Alison and Bushnan, and Mr. Swainson on *Instinct*.—"The term instinct, according to Dr. Alison, stands in opposition, not to the *will*, but the *reason* of man. 'The most correct expression of the difference between an action prompted by instinct and one prompted by reason is, that in the first case the will acts in obedience to an impulse which is directly consequent upon certain sensations or emotions felt or remembered; in the last, it acts in obedience to an impulse which results from acts of reasoning and imagination.' With the general view which this proposition is intended to enunciate, we fully accord, but we must differ from Dr. Alison in regard to the opinion that the *will* is concerned in the production of *instinctive* actions. It will be remembered, that on a former occasion we made use of this term to include all those actions 'which are performed in direct response to an external stimulus,' and we accordingly give it a much more extended application than does Dr. Alison, who restricts it to what we deem the highest class of such actions. But even using it in *his sense*, we cannot regard instinctive actions as produced through the will, *when instinct is acting alone*. In a great majority of cases, the instincts of man suggest motives to his judgment, and the resulting action is voluntary, although first stimulated by the instinctive

propensity. But, in animals whose instincts predominate over the reasoning powers, (the contrary being the case in man) we are of opinion that their instincts act *primarily* on the motor nerves. The case seems to us exactly parallel with that of the emotions, on some of which the instinctive propensities border very closely. There is no question that the emotions can act on the muscular system through the different nerves, independently of the will, and even in opposition to it; and that they operate through a distinct set of nervous filaments, appears proved by the fact that the muscles may be paralyzed to one set of impulses, and not to the other. But though the emotions can act immediately on the motor nerves, it is rarely that they do so in man, for they usually, that is, when only moderately exerted, influence the current of thought, supply motives to the judgment, and, therefore, operate through the will. Physiologically speaking, the two channels are perfectly distinct, and the question is, to which we are to refer the instinctive actions, 'in which the impulse is directly consequent upon sensations or emotions.' We maintain that it is more correct to refer them to the involuntary class, and to apply the term *will* only to that action of mind upon muscle, which 'results from acts of reasoning and imagination.' *

* * * The question now arises whether the lower animals are so formed that *all* their actions are instinctive, that is, are performed in direct response to a stimulus acting through the sensorium; or whether any of them involve the operation of reasoning powers. According to Dr. Alison, the latter is the occasional exception; the former the general rule. * * * That a deficiency of the power of forming *general notions*, and a limitation of their minds to particulars, and hence an incapacity for that adaptation of means to ends which implies a knowledge of the effect of these means founded upon general principles, is characteristic of the lower animals, we readily allow; but we do not think that Dr. Alison has given them quite as much credit for reasoning powers as some of them deserve. * * * We are disposed to believe, then, that in the higher classes of those commonly denominated the lower animals, reasoning powers exist rather inferior to those of men in

degree than differing in kind ; and that, as we ascend the scale, the instincts are gradually subordinated to them ; so that in the highest among them in point of intelligence, the general conduct is rather governed by the will, acting in obedience to intellectual operations (which may be originally stimulated by the instinctive propensity) than in direct response to the stimulus of sensation."

From *Dr. Holland's Medical Notes and Reflections*.—"Recurring now to the question, what other attributes of life depend directly on this part of the animal economy, the large and singular class of actions termed instinctive, comes into view ;—sufficiently separate from those already mentioned to warrant the inquiry whether there is any especial organization for them, or any nervous function with this appropriate destination. As anatomy affords no direct answer, we must seek by defining, as far as it can be done, the nature of the actions we so denominate. If limiting our view of instinct to those express motions which invariably follow the excitement of certain sensations, independently of volition or any conscious act of mind, it is clear that there is an especial structure fitted for this function, as part of the great system of organic life ; and the doctrine of reflex actions by the nerves affords illustration of many of the particular phenomena. And further, as respects the instinctive motions which take place through voluntary organs, we have presumption that the nervous structure is the same for both, in the fact, that any given series of muscular actions, become thoroughly habitual by repetition, approaches to the class of instincts, as far as the will is concerned ; or at least cannot be discriminated by any insight we have into these mysterious relations of life.

"But, it is obvious that we must not limit the meaning of instinct to mere motions only. The term carries us beyond, to those long trains of facts, of which such movements, whether strictly automatic, or involving any exercise of volition, are but the machinery ;—acts involving, as far as we can see, no operation of thought, or consciousness of the object to be attained, yet more precise and uniform than any results of animal intelligence ;—far more remarkable, moreover, in other animals than man ; multiplying in number and extent, as we

descend in the scale of being ; and at the lowest part becoming identical with existence itself, and closely associated with corresponding functions of vegetable life."

We quote the following paragraphs from Dr. Carpenter's Paper in the Edinburgh Medical and Surgical Journal, for 1837, (vol. xlviii.) "On the Voluntary and Instinctive Actions of Living Beings."—"All the actions (whether consisting of visible motions or not) essential to the organic life of animals, are in like manner produced by the *immediate* action of external stimuli; and being entirely involuntary, may be called *organic instincts*. Under this head are included (besides many less apparent changes) the motions of the heart and alimentary canal.

"The first office of the nervous system is to convey to a distant part the *impressions* made upon it, and to produce (by its *stimulation* of the contractile tissues) motions necessarily connected with them. These actions being purely instinctive and involuntary, may be called *excito-motor instincts*. * * * * *

"Where a more complicated nervous system exists, the impressions give rise to mental changes termed *sensations*, the seat of which is some part of the cerebral mass in the Vertebrata, and probably the ganglia, connected with the nerves of sense in the Invertebrata. With various sensations, certain involuntary motions are instinctively associated; but as *sensation*, a mental change in the sensorium, cannot immediately give rise to *stimulation*, an organic change at the extremities of the nerves, a *motive action* must be propagated from the sensorium along the nervous conductors, and this cannot result from an external impression wherever sensation does not exist. The instinctive actions thus resulting, are still purely involuntary, although they may be controlled in man by the higher power of the will. Certain habitual actions may come to take place nearly in the same circle, which may be called that of *sensori-motor instincts*."

So much, then, for the transcriptions which we have made. On a careful perusal of them we must acknowledge how various and opposite are the several doctrines promulgated, and how much each and all come short of carrying out their peculiar views. We shall leave

them *in statu quo*. They will form so much groundwork upon which we shall endeavour to build some reflections, at another, and we hope, no distant period.

THE END.

OBSERVATIONS ON INSTINCT.

PART I.

“ Dr. Etherington’s argument will be found admirably compacted and designed : in fact, it resembles very closely a regular syllogism, elaborated by appropriate explanations. A perusal of his present able production will well repay the labour, whether by the novelty of his views, the vigour of his argumentation, the felicity of his research, or the enthusiasm of his diction.”—*Berwick and Kelso Warder*, Aug. 28, 1841.

“ The pamphlet before us contains an ingenious essay on the subject of Instinct ; * * * These points the Author illustrates by a train of clever reasoning ; * * * proves at all events, that the author possesses an acute and searching intellect.”—*The Scotsman*, Sep. 22, 1841

“ He ” (the author) “ has succeeded in bringing to the illustration of a very decided theory a variety of authorities and examples which are well calculated to fortify and bear out his opinions.”—*The Edinburgh Evening Post*, Oct. 30, 1841.

“ The author of this interesting and excellent little pamphlet, has practically illustrated the classical adage, “ a great book is a great evil,” by bringing within a small compass a condensed mass of facts and theories, which, in the hands of a man less fitted for the task, would probably have been extended to one or two volumes. * * We cordially recommend this interesting pamphlet to our readers.”—*Nottingham Review*, Oct. 15, 1841.

